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| RESEARCH ARTICLE

Video-Based Instruction in Pathfit 1: Does Muscle Fitness

Bong Jovert A. Dechos[1], Rulthan P. Sumicad[2] ✉ Rosamaria P. Gob[3], Dennis E. Olofernes[4] and Dennis Charles A. Dumdum[5]

[1]MAEd-PE and Sports, LPT, PE Instructor, College of Arts and Sciences, University of Cebu-Main, Cebu City, Philippines
[2]MA-Mathematics, LPT, PRC-College of Arts and Sciences, University of Cebu-Main, Cebu City, Philippines
[3]MAT- PE, LPT, PE Instructor, College of Arts and Sciences, University of Cebu-Main, Cebu City, Philippines
[4]MAT-PE, LPT, PE Coordinator, College of Arts and Sciences, University of Cebu-Main, Cebu City, Philippines
[5]LPT, College of Arts and Sciences, University of Cebu-Main, Cebu City, Philippines

Corresponding Author: Rulthan P. Sumicad, **E-mail**: rulthanpatoc@gmail.com

| ABSTRACT

This research evaluated video-based instruction in PATHFIT 1 and muscle fitness in the University of Cebu Main Campus for the Academic Year 2021-2022 to propose enhancement of the video-based instructional material. The respondents were 70 students in two sections of PATHFIT 1. The study investigated students' performance using Video-Based Material in teaching muscular fitness exercises, their perceived level of encountered problems, and whether there is a significant difference between students' performance using video-based instructional material and traditional teaching material. The findings showed that the students' performance who use the video-based material enhances the students' performance. The acceptability level of the video-based instructional material revealed that students strongly agreed on learning processes. However, there is no significant relationship between the variables. Thus, it is recommended that the enhanced Video-Based Instructional Material in Teaching Muscle Fitness Exercises be implemented in the school, especially in teaching exercises in PATHFIT 1.

| KEYWORDS

Video-based Instruction, Muscle Fitness, PATHFIT, University of Cebu, Quasi-experimental, Quantitative Study.

| ARTICLE INFORMATION

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1. Introduction

The Philippines, in particular, faced a critical situation due to the rise of the health crisis. For higher education institutions, avoiding and limiting the risks of infection of the pandemic community has become a primordial concern. Hence, with the implementation of community quarantine, the conduct of classes needed to be immediately suspended. The herculean challenge then was continuing teaching and learning beyond the usual face-to-face instruction.

Thus, exploring other innovative learning modalities is urgently needed to facilitate migration from traditional to flexible teaching and learning options. As learners differ in time, pace, and place, these options allow customization of the delivery modes responsive to students' need to access quality education.

Pandza and Masic (2010) suggest that technological advancements are transforming classrooms into knowledge hubs, mainly through distance learning facilitated by the Internet. With approximately 80 percent of distance education courses now web-based E-Learning courses, this trend underscores the increasing accessibility of advanced educational opportunities for students across various learning styles and backgrounds.

Physical education, centered on physical activity, differs from traditional academic subjects. Thus, online physical education courses necessitate unique planning and execution to promote the principles of physical education effectively. With in-person and online schooling being conducted globally, assessing if online physical education classes adequately uphold these values is crucial. Yet, existing research on the effectiveness and potential of such classes still needs to be expanded.

In Korea, Jeong and So (2020) expressed that the difficulties in teaching Physical education online include limited environmental conditions and educational content, which decreases the effectiveness of conveying to students the value of the subject. The study also pointed out that teachers' need for more knowledge in employing online content has led to trial-and-error methods in teaching physical education. This makes it more challenging for educators to deliver the PE subject with enthusiasm and motivation. However, they are finding ways to make themselves competent and full of skills to benefit the student's betterment.

Anderson (2015) suggests that online learning, a part of distance education, offers a more flexible educational experience than campus-based education. He outlines the instructional process in both settings and introduces a theory or model from the distance education standpoint. Anderson believes his model will enhance comprehension of this complex educational context and stresses the importance of thoroughly assessing the impact of input variables on relevant outcome variables.

Anderson (2015) also commented on the potential of the Internet for education delivery and that an online learning-based theory or model could subsume all other modes except the "rich face-to-face interaction in formal classrooms" (Anderson, 2015, p. 67). This becomes a quandary for Anderson in developing a standard online education theory. It does not provide for in-person, face-to-face activity and is problematic for those who see online education as a subset of education in general.

As people continue to live in the modern world, technological advancement and innovation exist because of people's passion and determination to make life easy and convenient. One of the valuable inventions is gadgets that can be used to communicate and even search for important information. As everyone knows, the pandemic still exists in the world today. As we progress with education, we are steadfast not to be beaten by this pandemic or defeated. For that reason, education finds a way to connect to students amidst the pandemic. Through the different online platforms as a tool to continue educating the students. One of the modalities used today is the synchronous modality, which connects students to their teachers online.

The physical activity pyramid has different steps or levels of physical activity. One of the physical activity levels is muscle fitness exercises, which help build agility, flexibility, strength, muscular endurance, and power. Muscle fitness exercises include resistance training, using weights or machines, and using your body weight in climbing, calisthenics, and jumping. This type of exercise produces general health and wellness benefits, as well as better performance, improved body appearance, a healthier back, better posture, and stronger bones.

This study was conducted to make the University of Cebu- Main Campus Physical Education 101 students aware of the importance of Muscle Fitness Exercises and How they could continue to learn and perform in a synchronous platform. The result of which will be utilized for a proposed activity for implementation. Further, this significantly contributes to the body of existing knowledge in the context of research and innovation as one of the focuses of sustainable development goals. This study will contribute to realizing the sustainable development goals (4) quality education and (3) good health and well-being anchored in research.

2. Framework of the Study

The study operated under the assumption that the demonstration method is a practical approach for teaching muscle fitness exercises. This assumption drew from Khan's (2020) description of the demonstration method, wherein the teacher systematically and step-by-step instructs students using demonstrations. This approach, seen as practical, entails teachers demonstrating activities to clarify concepts for students. It is especially useful when connecting theoretical knowledge with practical application is difficult or when students encounter challenges in understanding theoretical concepts and their practical implications.

The "community of inquiry" model, crafted by Garrison, Anderson, and Archer (2000), underscores three separate "presences": cognitive, social, and teaching. Anderson, Rourke, Garrison, and Archer (2001) suggest further research on each aspect while acknowledging their interconnection. This model advocates for active learning environments or communities in online and blended courses, where instructors and students exchange ideas. Notably, "presence" is a social phenomenon emerging from interactions. This model has gained popularity in designing highly interactive online and blended courses, utilizing platforms such as discussion boards, blogs, wikis, and videoconferencing.

Hrastinski, Keller, and Carlsson (2010) highlight the limited research attention given to synchronous e-learning compared to asynchronous e-learning. They argue that practitioners in this field urgently require guidance for designing and implementing synchronous e-learning. In response to this need, they propose design exemplars targeted at teachers, administrators, managers,

and developers of e-learning. These exemplars stem from both theoretical and empirical analyses of studies conducted from 2003 to 2006. Moreover, they underwent evaluation through focus group sessions involving seasoned e-learning practitioners. The exemplars received robust backing and can be utilized as research hypotheses for forthcoming design studies in this domain.

Section 19, Article XV of the 1987 Philippine Constitution mandates the State to promote physical education and endorse sports programs, league competitions, and amateur sports, including training for international competitions. This aims to foster self-discipline, teamwork, and excellence to cultivate a healthy and vigilant citizenry. Similarly, Section 2 of Republic Act No. 5708 stipulates that the Department of Education shall implement an integrated physical education and sports development program in all schools in the Philippines. The guiding principles include instilling in young citizens an appreciation for physical development alongside mental development, providing opportunities for athletic development, and ensuring a well-rounded physical education program addressing physical growth, social training, and personal discipline for all students, as well as superior athletic achievement for those inclined and gifted in that area. Warm-up exercises are deemed essential in all physical activities to achieve these objectives.

The National Competency-Based Teacher Standards (NCBTS) defines the desired practice of effective teaching. The NCBTS sets performance indicators classified in appropriate domains and strands that guide teachers' professional development. Hence, processes and tools are continuously developed to enhance teachers' competencies and professional development.

Adalikwu and Lorkpilgh (2013) argued that students who were taught using instructional materials showed significantly better performance than those who were not. Using instructional materials generally improved students' understanding of concepts and led to high academic achievements. As a competent teacher, teaching students with instructional materials is essential. It is evidence of how instructional materials impact students learning in the teaching-learning process.

Graham (2006) presented the concept of blended learning. He defined blended learning as not dependent on the mode of presenting something but on what is being presented. He stated that instructional media and methods used, along with integrating face-to-face and online instruction, constitute the components of blended learning. Moskal, Dzinban, and Hartmen (2013) described blended learning as the transformation occurring in higher education institutions through the amalgamation of traditional and contemporary methods. However, they suggested that there must be a better definition so that higher education institutions may align their goals to initiate blended learning successfully. In this manner, blended learning has been found to develop adaptability into individuals' learning and help organizations productively utilize time and workforce.

Motteram and Forrester (2005) define online learning as an individualized process requiring students to possess prerequisite skills such as familiarity with course technology, ability to navigate course materials, and understanding communication methods with peers. Muilenburg and Berge (2005) stress that successful online learners must allocate time to adapt online activities to their schedules amidst other family and work obligations.

Kretschmann (2010) scanned the various articles describing pedagogical scenarios for technology integration in physical education. He could posit four pedagogical scenarios that stand for the typical and most beneficial use of technology integration in physical education classes regarding student learning: a) homework and theory, b) informational Input, c) learning stations, and d) feedback.

Kretschmann (2014) Technology integration may also be regarded as an ongoing process that starts over once it is fulfilled, especially when considering professional development efforts. On the one hand, teachers may further develop their current technology skills regarding technology use in the classroom.

Students utilize available resources at home and strive to keep up with their coursework. While online learning might seem like the optimal choice, there needs to be more concern about how everyone manages and deals with challenges that arise during online classes, particularly synchronous sessions. Synchronous courses are conducted in real-time, and many problems arise. Sadly, most of these problems are internet connections, gadgets used, and where they performed the different exercises. These are the common problems they are facing nowadays. However, this challenge is being addressed by our dear students because of the need to educate oneself and become productive members of society.

As the world embraces technological trends in teaching, prior knowledge of educators can still be integrated into the online teaching platform. We are being challenged to adapt to the new changes in modality and be flexible as members of society. People will prosper by updating their knowledge in the world of technology.

This theory anchors the study because it focuses on synchronous instruction in teaching muscle fitness exercises to the PE 101 students of UC-Main Campus. The PE 101 students will be exposed to different fitness exercises, namely Agility, Flexibility, Muscle endurance, Power, and Strength, after which they will be assessed based on their performance. The problems the students

encountered will also be checked based on the students' internet connections, the type of gadgets being used, and the student's environment. It will also examine the significant correlation between students' performance on the different exercises and their feedback on using the approach in teaching synchronous modality. At the end of the study, the researcher will be able to contribute enrichments.

3. Objectives of the Study

The research aimed to evaluate the effectiveness of video-based instruction in PATHFIT 1 for teaching muscle fitness to first-year students at the University of Cebu-Main Campus during the academic year 2021-2022. This assessment served as a basis for proposed enhancements in the instructional approach. The study focused on addressing several key questions: First, it examined the performance of students in muscular fitness exercises, including agility, flexibility, muscular endurance, power, and strength, utilizing both video-based instructional materials and traditional teaching methods aligned with step 4 of the Physical Activity Pyramid. Second, it investigated whether there was a significant difference in student performance between the two instructional approaches following synchronous sessions. Additionally, the study sought to identify the challenges students encountered, particularly regarding accessibility, environment, and instructions. Finally, based on the findings, the research aimed to determine potential improvements that could be made to the instructional video materials to enhance their effectiveness in teaching muscle fitness.

4. Research Methodology

This study employed a two-group post-test design that is quasi-experimental. The first group used the video-based instructional material, whereas the others did not. Another statistical method used is the independent samples T-Test, which will outline how students' performance will differ from traditional and video-based instruction in synchronous mode. Students will be evaluated for agility, Flexibility, Muscular endurance, Power, and Strength. Furthermore, it will help the institution to enrich the activities related to the topic. This quasi-experimental research study utilized the standardized feedback questionnaire and students' performance. The data was gathered through a performance and conducting survey form to document the needed information.

The inputs of the study refer to the basic information needed to be based on the variables. This includes students' encountered problems after synchronous sessions and students' performance in muscle fitness exercises. This step determines the basis for making video instructional material for Physical Education 101.

Next is the process. This refers to gathering data such as encountered problems, students' performance based on muscle fitness exercises, and statistical computation. Appropriate statistical tools will be used to treat data, and a survey questionnaire will be utilized to identify students' feedback on the video instructional material.

The last is the output of the study, which is based on the results of the data gathered.

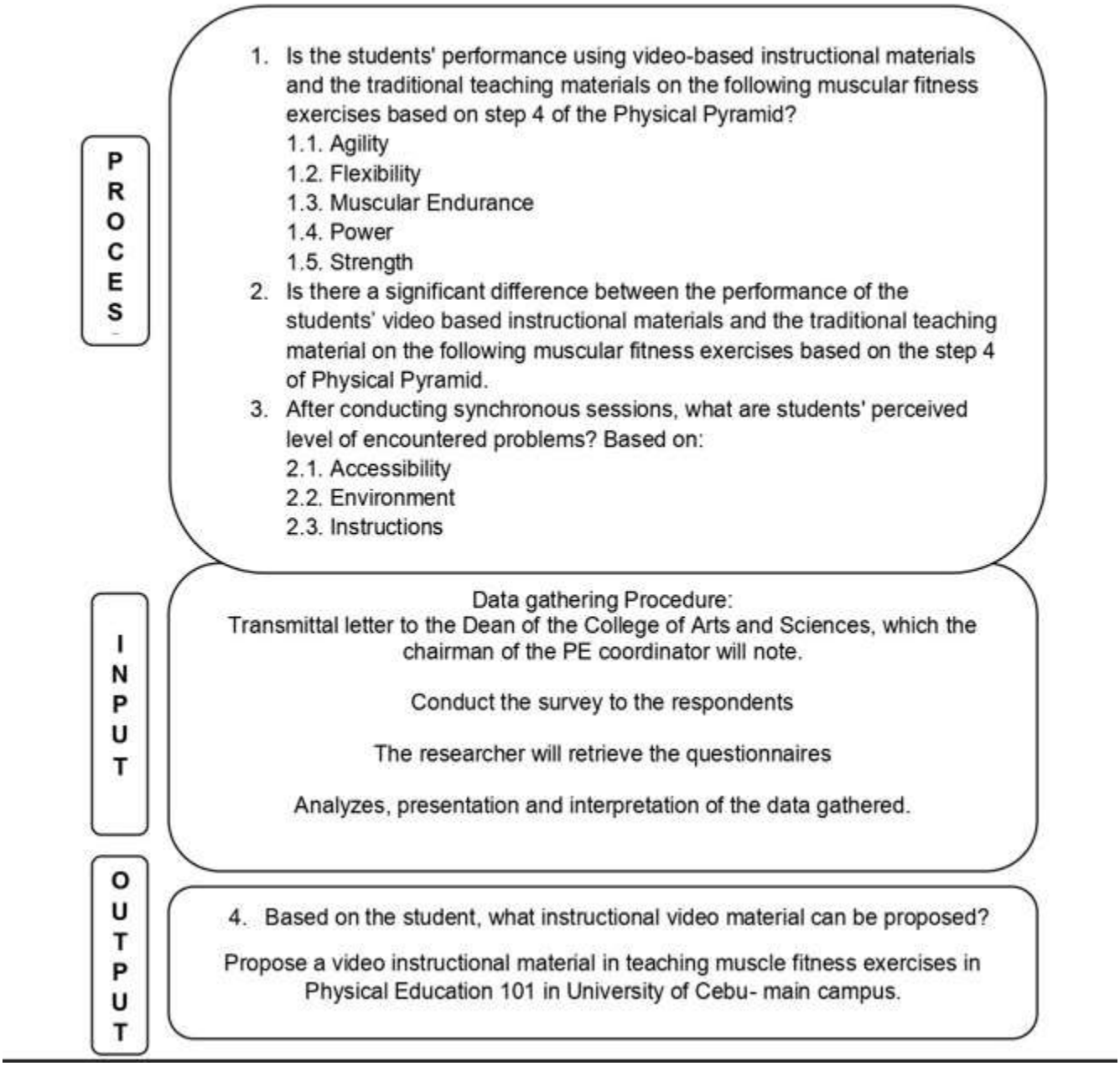

Figure 2: **Flow of the Study**

This study was conducted at the University of Cebu- Main Campus College Department. The University The University of Cebu (UC) (Cebuano: Unibersidad sa Sugbo; Filipino: Pamantasan ng Cebu is a private, non-sectarian, coeducational essential and higher education institution in Cebu City, Philippines. With over 44,000 students from preschool to post-graduate students in 4 campuses, UC is the country's private university (Satorre, 2011). UC consistently produces topnotchers in engineering, maritime studies, marine engineering, naval architecture, nursing, accounting, criminology, and costume administration board exams. UC has around 1,000 maritime scholars from local and international companies; most are assured of employment after graduation.

This study would have 96 respondents from BSCE and AB classes at the University of Cebu-Main Campus. The respondents are 47 BSCE students and 49 AB students, all first-year students from the university's different departments. The student's group was chosen since the researcher's subject is being offered during this semester.

Table 1
Distribution of Respondents

SECTIONS	NUMBER OF RESPONDENTS (N)	PERCENTAGE (%)
BSCE	47	48.96
AB	49	51.04
Total	96	100%

The study will cover five weeks, wherein the students will enroll in Physical Education 101 subject. This will start from June to July 2022. One semester covers one month. The timeline will be formulation of the transmittal letter and waiting for the chairperson's approval. Next, prepare the feedback questionnaires for the students to answer and a rubric for the other teachers' rating of the students' performance.

The researchers used a Likert scale survey questionnaire in Google form based on the questions on their internet connection, environment, and instructions. The first part of the instrument is the introduction of the researchers to the respondents, the student's profile, and the instructions. There are two parts to the survey questionnaire. Part 1 is the teacher evaluating the student's performance based on the different muscle fitness exercises like agility, flexibility, muscle endurance, power, and strength. In part 2, they will ask some questions using a Likert scale according to the perceived level of problems students encounter regarding the accessibility, environment, and instructions where they are conducting the class sessions.

The researcher will write a transmittal letter addressed to the chairman of the Physical Education Department and signed by the adviser. Upon approval, the researcher will ask permission from the respondents to answer the Google Forms feedback questionnaire and conduct the survey during the respondents' vacant time. The researcher will then present the feedback questionnaire and give the respondents 5-10 minutes to complete it. Then, the researcher will retrieve the questionnaires. Lastly, the statistician collected, analyzed and interpreted the data. The researcher summarized all the findings, suggestions, and recommendations, and the result was then used as the basis for the proposed enhancement of video material for fitness exercises.

This tool is an average in which each quantity is assigned a weight. These weights determine the relative importance of each amount on the standard. This device was used to determine the student's descriptive statistics performance. The scores rated by the expert teachers from the 96 students will be summed up and averaged. Then, the researcher translated the meaning of the weighted mean using the performance rubrics. The rating code of Likert was provided to give value to the responses made by the respondents.

5. Results and Discussions

This chapter comprises the presentation, analysis, and interpretation of data, including vis-a-vis information on the respondents' performance and their attitude towards using the video-based instruction in teaching muscle fitness exercises, perceived level encountered problems of the students, and significant relationship between students' performance. To strengthen the findings revealed in this study, discussions are incorporated with research literature that either supports or refutes the arguments.

This part considered the information regarding the performance of the students after using the Video-Based Instruction in Teaching Muscle Fitness Exercises. This determined whether the respondents performed well based on the given criteria and how the students performed based on the given scale.

5.1 Performance of Experimental Group on Agility Exercises

Performance of the Experimental group on the Agility Exercises and two of the criteria used to assess the abilities of the students to perform High Knees and Jumping Jacks exercises. The experimental group's performance in Flexibility Exercises is reflected in Table 3.

Table 3 ***Performance of the Experimental Group on Agility Exercises***

Agility Exercises	Mean	Sd	Interpretation
High Knees	3.76	0.24	Proficient
Jumping Jacks	3.91	0.17	Excellent
Total	**3.84**	**0.33**	**Excellent**

Legend: 3.26-4.00 – Excellent, 2.51-3.25 – Proficient, 1.76-2.50 – Developing, 1.00-1.75 – Needs Improvement

As revealed in Table 3, the student respondents of the experimental group performed *Excellent*ly, with a grand mean of 3.84 and a standard deviation of 0.33 for the agility exercises. Among the Agility Exercises, the High Knees got a mean of 3.76 and a standard deviation of 0.24, and Jumping Jacks got the highest mean for agility exercises, which is 3.91 and a standard deviation of 0.17, which means that most of the students respondents performed Jumping Jacks effectively for the reason that they used to perform it and the exercise is easy to execute. This outcome aligns with Marshall's (2022) findings, which suggest that entertaining media can engage learners, evoke emotional responses, spark interest in topics, and facilitate absorption and processing of information. This contributes to a clearer understanding of lessons and acquisition of knowledge, ultimately enhancing student performance in various exercises. Therefore, students have evidently met the criteria for performing the exercises effectively.

In connection, the instructional material provides systematic instructions for the students to be guided and to learn the different exercises independently and meaningfully. The execution of the different exercises provides clear ideas of the significance of the instructional content. As Kalin (2004) defines the selection of materials, the teacher should choose a medium that will allow for a systematic treatment of the educational content and its credible representation and will take into account learning steps. Understanding these concepts has enabled the students to know the importance of specific preparations before engaging in a physical activity. Above all, the instructional material has made the experimental group more active in learning and understanding the content effectively.

5.2 Performance of the Controlled Group on the Agility Exercises

The control group's performance on the agility exercises was one of the criteria used to assess the abilities of the students to perform and execute high knees and jumping Jack exercises. The performance of the control group in Agility Exercises is reflected in Table 4.

Table 4
Performance of the Controlled Group on Agility Exercises

Agility Exercises	Mean	Sd	Interpretation
High Knees	3.4	0.42	Proficient
Jumping Jacks	3.41	0.40	Excellent
Total	**3.41**	**0.41**	**Excellent**

Legend: 3.26-4.00 – Excellent, 2.51-3.25 – Proficient,1.76-2.50 – Developing, 1.00-1.75 – Needs Improvement

As shown on Table 4, the student respondents of the control group performed *Proficient* with a grand mean of 3.41 and a standard deviation of 0.41 as to the High knees and Jumping Jacks exercise under Agility Exercises. Among the Agility exercises, the Jumping Jacks got the highest mean with a mean of 3.41 and a standard deviation of 0.40, which means that most of the student respondents performed the skill effectively for the reason that they used to perform the exercise during any exercise performances. Thus, the ability to learn the different exercises is evidenced by how students applied their learnings after discussing the different Agility Exercises. The result of this study relates to the findings of French (2015) that activity-based learning approaches to teaching enable learners to have control over their learning and accept greater responsibility for learning. In the study context, the control group underwent hands-on and interactive discussion through an online platform. However, the control group received fewer instructional materials from the teacher. Despite this treatment, the control group achieved an Excellent interpretation result because the types of exercises under Agility exercises are easy to follow based on the instructions given in exercises performed by the students. This means that students have significantly achieved the criteria based on how the exercises should be performed.

5.3 Comparison of the Performance : Experimental and Control Group as to the Agility Exercises

Based on the results of the experimental and the control group, the Agility Exercises, like High Knees and Jumping Jacks, showed that the experimental group attained a higher mean of 3.84 and standard deviation of 0.33, which indicated an *Excellent* performance compared to the control group's mean which is 3.41 with a standard deviation of 0.41. This implies that the experimental group exhibited an excellent performance in Agility Exercises. Despite the differences, both results reflect acceptable performance. The two groups vary only in how the instruction is being administered. Moreover, the two groups underwent a teaching-learning process, making them more active, engaged, and independent in learning the basic swimming concepts.

5.4 Performance of the Experimental Group on the Flexibility Exercises

Performance of the Experimental group on the Flexibility Exercises like Knees to Chest and Sit. Reach was one of the criteria used to assess the abilities of the students to perform and execute the different exercises. The experimental group's performance in Flexibility Exercises is reflected in Table 5.

As reflected in Table 5, the student respondents of the experimental group performed *Excellently, with a grand mean of 3.57 and a standard deviation of 0.31 for the flexibility exercises*. Among the Flexibility Exercises, Knees to Chest got the highest mean of 3.74 and a standard deviation of 0.25, which means most of the student respondents performed the skill effectively, and Excellent in Sit and Reach with a mean of 3.40 and standard deviation of 0.36.

Table 5
Performance of the Experimental Group on Flexibility Exercises

Flexibility Exercises	Mean	Sd	Interpretation
Knees to Chest	3.74	0.25	Excellent
Sit and Reach	3.40	0.36	Excellent
Total	**3.57**	**0.31**	**Excellent**

Legend: 3.26-4.00 – Excellent, 2.51-3.25 – Proficient,1.76-2.50 – Developing, 1.00-1.75 – Needs Improvement

The results showed that students in the experimental group excelled in performing knees-to-chest, sitting, and reaching exercises. This outcome aligns with the findings of Adalikwu & Lorkpilgh (2013), who argued that students taught with instructional materials outperformed those without. The results suggest that students in the experimental group met the criteria and demonstrated excellent performance in flexibility exercises.

5.5 Performance of the Control Group on the Flexibility Exercises

Performance of the Control group on the Flexibility Exercises was one of the criteria used to assess the abilities of the students to perform and demonstrate flexibility exercises. The control group's performance in Breathing Skills in Swimming is reflected in Table 6.

Table 6
Performance of the Control Group on Flexibility Exercises

Flexibility Exercises	Mean	Sd	Interpretation
Knees to Chest	3.31	0.38	Excellent
Sit and Reach	3.3	0.40	Proficient
Total	**3.31**	**0.39**	**Excellent**

Legend: 3.26-4.00 – Excellent, 2.51-3.25 – Proficient, 1.76-2.50 – Developing, 1.00-1.75 – Needs Improvement

As manifested in Table 6, the student respondents of the control group performed *excellent*ly in flexibility exercises with a grand mean of 3.31 and a standard deviation of 0.39. Among the Flexibility Exercises, Knees to Chest exercise got a higher mean of 3.31 and a standard deviation of 0.38, which means most of the student respondents performed the exercise excellently; however, developing Sit and Reach exercise with a mean of 3.3 and a standard deviation of 0.40. The results showed that the control group students *performed proficient*ly in the Sit and Reach exercise. The results implied that the student respondents of the control group

understood and could perform the different flexibility exercises.

As Khan (2020) stated, in the demonstration method, the teacher teaches his students using the demonstration method in a systematic and step-by-step process. However, the control group received fewer instructional materials from the teacher. Despite this treatment, the control group managed to attain a *Proficient* result.

5.6 Comparison of the Performance : Experimental and Control Group as to Flexibility Exercises

Based on the experimental and control group flexibility exercises results, the experimental group attained a higher mean of 3.57 and a standard deviation of 0.31, which indicated an *Excellent* performance compared to the control group's mean of 3.31with a standard deviation of 0.39. This implies that the experimental group performed excellently in the Flexibility exercises. Despite the differences, both results reflect acceptable performance. The two groups vary only in how the instruction is being administered.

5.7 Performance of the Experimental Group on Muscular Exercises

Performance of the Experimental group on the Muscular Exercises was one of the criteria used to assess the abilities of the students to perform and demonstrate the Muscular Exercises. The experimental group's performance in Muscular Exercises is reflected in Table 7.

Table 7
Performance of the Experimental Group on the Muscular Exercises

Muscular Exercises	Mean	Sd	Interpretation
Planks	3.54	0.33	Excellent
Dips	3.75	0.24	Excellent
Total	**3.65**	**0.29**	**Excellent**

Legend: 3.26-4.00 – Excellent, 2.51-3.25 – Proficient, 1.76-2.50 – Developing, 1.00-1.75 – Needs Improvement

As shown in Table 7, the student respondents of the experimental group performed *Excellently,* with a grand mean of 3.65 and a standard deviation of 0.29 for muscular exercises. Among the Muscular exercises, the Dips got the highest mean with a mean of 3.75 and a standard deviation of 0.24, which means that most of the student respondents performed this skill effectively. Likewise, other Muscular Exercises, like the Plank exercise, got a mean of 3.54 and a standard deviation of 0.33. This means that student respondents have significantly achieved the criteria based on how the skills should be performed.

In addition, the structured directions and demonstration in the video-based educational material let students follow along, learn the various physical exercises independently, and get significant knowledge with instructional material support. These results are consistent with Noble's findings (1983, as cited in CPB, 2004), which indicate that emotion strongly influences memory. Consequently, educational videos can significantly convey experiences and impact cognitive learning. The instructional video provides clear ideas on the basic steps, processes, and types of muscular exercises integrated into every physical activity. Learning these skills enabled the students to know the importance and the specific preparations before engaging in more complex physical activities. Above all, the instructional material has made the experimental group more active in learning and effectively understanding the content.

5.8 Performance of the Control Group on the Muscular Exercises

Performance of the Control group on the Muscular Exercises was one of the criteria used to assess the abilities of the students to perform and execute the Planks and Dips exercises. The control group's performance on Muscular Exercises is reflected in Table 8.

Table 8
Performance of the Control Group on the Muscular Exercises

Muscular Exercises	Mean	Sd	Interpretation
Planks	3.21	0.40	Proficient
Dips	3.21	0.37	Proficient
Total	**3.21**	**0.39**	**Proficient**

Legend:3.26-4.00 – Excellent, 2.51-3.25 – Proficient,1.76-2.50 – Developing, 1.00-1.75 – Needs Improvement

As reflected in Table 8, the student respondents of the control group performed *Proficient*ly with a grand mean of 3.21 and a standard deviation of 0.39 for Muscular Exercises. Both muscular exercises under a controlled group got a mean of 3.21 and a standard deviation of 0.21 for planning and 0.37 for dips exercise, which means that most of the student respondents performed the skill effectively. This means using instructional material is essential in acquiring knowledge about the lesson that will help them perform the different exercises well. The results of this study relate to the findings of Schmid (2014), in which multiple studies showed that video, specifically, can be a highly educational tool to support students' learning. Though students proficiently performed both exercises, if there were instructional material that would support students learning, they would be able to improve their performance and have significantly achieved the criteria based on how the skills should be performed. Thus, the ability to learn Muscular Exercises was evident in how students applied their learnings after discussing the different Muscular Exercises through physical activities. Despite this treatment, the control group attained a Proficient result in all exercise competencies.

5.9 Comparison of the Performances : Experimental and Control Groups in Muscular Exercises

Based on the experimental and control groups' results, Muscular exercises showed that the experimental group attained a higher mean of 3.65 and standard deviation of 0.29, which indicated an *Excellent* performance compared to the control group's mean of 3.21 with a standard deviation of 0.39. This implies that the experimental group performed excellently in the Muscular Exercises. Despite the differences, both results reflect acceptable performance. The two groups vary only in how the instruction is being administered.

5.10 Performance of the Experimental Group on the Power Exercises

Performance of the Experimental group on the Power Exercises was one of the criteria used to assess the abilities of the students to perform and execute the different power exercises. The experimental group's performance in Power Exercises is reflected in Table 9.

Table 9
Performance of the Experimental Group on the Power Exercises

Power Exercises	Mean	Sd	Interpretation
Lunges	3.82	0.20	Excellent
Crunches	3.57	0.39	Excellent
Total	**3.70**	**0.30**	**Excellent**

Legend:3.26-4.00 – Excellent, 2.51-3.25 – Proficient, 1.76-2.50 – Developing, 1.00-1.75 – Needs Improvement

As shown in Table 9, the student respondents of the experimental group performed Excellently, with a grand mean of 3.70 and a standard deviation of 0.30 for power exercises. Among the Power Exercises, the Lunges got the highest mean with a mean of 3.82 and a standard deviation of 0.20, which means that most of the student respondents performed this skill effectively. Also, Crunches got an Excellent interpretation with a mean of 3.57 and a standard deviation of 0.39. This means that student respondents have significantly achieved the criteria based on how the exercises should be performed. The results implied that the student respondents of the experimental group attained the criterion and could perform the kicking skills in swimming. Thus, learning the Power Exercises evidenced how students applied their learnings after learning the video-based instruction material in teaching muscular fitness exercises.

Connection, Jacobs (2012) showed that using videos could lead to classroom participation in a higher education context in which the instructional material provides systematic instructions and demonstrations for the students to be guided, learn the Lunges

and Crunches independently, and develop power. The instructional material provides clear ideas on performing the two exercises to improve one's power. Above all, the module has engaged the experimental group to be more active in learning and understanding the module's content effectively.

5.11 Performance of the Control Group on Power Exercises

Performance of the Control group on the power exercises was one of the criteria used to assess the abilities of the students to perform and demonstrate the different exercises. The control group's performance on the Kicking Skill in Swimming is reflected in Table 10.

Table 10
Performance of the Control Group on the Power Exercises

Power Exercises	Mean	sd	Interpretation
Lunges	3.23	0.40	Proficient
Crunches	3.28	0.34	Excellent
Total	**3.26**	**0.37**	**Excellent**

Legend: 3.26-4.00 – Excellent, 2.51-3.25 – Proficient, 1.76-2.50 – Developing, 1.00-1.75 – Needs Improvement

As reflected in Table 10, the student respondents of the control group performed Power Exercises with a grand mean of 3.26 and a standard deviation of 0.37 for Kicking Skills. Among the Power Exercises, the Crunches got the highest mean with a mean of 3.28 and a standard deviation of 0.34, which means that most of the student respondents performed the skill effectively. Likewise, Lunges also got a Proficient interpretation with a mean of 3.23 and a standard deviation of 0.40. This means that students have proficiently achieved the criteria based on how the skills should be performed. The results implied that the student respondents of the control group understood and could perform the different Power Exercises.

Thus, the ability to learn the exercises developed power, which was evident in how students applied their learnings after discussing the different exercises. The result of this study relates to the findings of French (2015) that an activity-based learning approach to teaching enables learners to have control over their learning and accept greater responsibility for learning. In the study context, the control group underwent hands-on and interactive discussion through an online platform. However, the control group received fewer instructional materials from the teacher. Despite this treatment, the control group managed to attain a Developing result.

5.12 Comparison of the Performance:Experimental and Control Group as to Power Exercises

Based on the results of the experimental and the control group as to the exercises about Power, it showed that the experimental group attained a higher mean of 3.70 and standard deviation of 0.30, which indicated an Excellent performance compared to the control group's mean, which is 3.26with a standard deviation of 0.37. This implies that the experimental group performed excellently in the different Power Exercises, namely Lunges and Crunches. Despite the differences, both results reflect acceptable performance. The two groups vary only in how the instruction is being administered.

Moreover, the two groups underwent a teaching-learning process that made them more active, engaged, and independent in learning the different kicking skills in swimming. Dejene (2019) revealed that educational materials are essential in utilizing student-centered pedagogies and continuous assessment methods.

5.13 Performance of the Experimental Group on the Strength Exercises

The performance of the experimental group on the strength exercises was one of the criteria used to assess the abilities of the students to perform and execute the different exercises like prisoners' squats and glute bridges. The performance of the experimental group in performing Strength Exercises is reflected in Table 11.

Table 11
Performance of the Experimental Group on the Strength Exercises

Strength Exercises	Mean	Sd	Interpretation
Prisoners Squat	3.90	0.17	Excellent
Glute Bridge	3.85	0.20	Excellent
Total	**3.88**	**0.19**	**Excellent**

Legend: 3.26-4.00 – Excellent, 2.51-3.25 – Proficient, 1.76-2.50 – Developing, 1.00-1.75 – Needs Improvement

As revealed in Table 11, the student respondents of the experimental group performed Excellently, with a grand mean of 3.88 and a standard deviation of 0.19 for strength exercises. Under Strength Exercises, the Prisoners Squat got the highest mean with a mean of 3.90 and a standard deviation of 0.17, which means that most of the student respondents performed this skill effectively. Also, the other exercise, Glute Bridge, got an Excellent interpretation with a mean of 3.85 and a standard deviation of 0.20. This means that student respondents have significantly achieved the criteria based on how the skills should be performed.

In total, the student respondents of the Experimental Group performed Excellent in Strength Exercises with a grand mean of 3.88 and a standard deviation of 0.19. The results showed that the experimental group students performed the two exercises well. The results implied that the student respondents of the experimental group attained the criterion and could perform the exercises effectively. Thus, the ability to perform the different exercises under strength exercises is evidenced by how students applied their learnings after learning the Video-based Instructional Material in teaching.

5.14 Performance of the Control Group on the Strength Exercises

The Summary of the Performance of the Control group in Strength Exercises was one of the criteria used to assess the abilities of the students to perform and execute the different exercises under strength exercises, namely Prisoners Squat and Glute Bridge exercises. The summary of the performance of the control group in Swimming Skills is reflected in Table 12.

Table 12
Summary of the Performance of the Control Group for Strength Exercises

Strength Exercises	Mean	Sd	Interpretation
Prisoners Squat	3.22	0.43	Proficient
Glute Bridge	3.27	0.38	Excellent
Total	**3.25**	**0.41**	**Proficient**

Legend: 3.26-4.00 – Excellent, 2.51-3.25 – Proficient, 1.76-2.50 – Developing, 1.00-1.75 – Needs Improvement

As reflected in Table 12, the student respondents of the control group performed Proficiently, with a mean of 3.25 and a standard deviation of 0.41 for Strength Exercises. Among the different Strength Exercises, the Glute Bridge got the highest mean with a mean of 3.27 and a standard deviation of 0.38, which means that most of the student respondents performed the exercise Excellently. Likewise, the students got a Proficient interpretation in performing Prisoners Squat with a mean of 3.22 and a standard deviation of 0.43. The students find it hard to perform the exercise since an intervention has yet to be done. This means that students have proficiently achieved the criteria based on how they should perform the exercise.

5.15 Comparison of the Performance:Experimental and Control Group as to Strength Exercises

Based on the results of the experimental and the control group as to the Strength Exercises, it showed that the experimental group attained a higher mean of 3.88 and standard deviation of 0.19, which indicated Excellent performance compared to the control group's mean of 3.25 with a standard deviation of 0.41 as to performing the different Strength Exercises which result to a Proficient interpretation. This suggests that the experimental group performed the various strength-related activities with an Excellent level of proficiency. Conversely, the control group displays proficiency. Both findings show acceptable performance despite the variances. The only difference between the two groups is how the lesson is delivered. Additionally, a teaching-learning approach was used with the two groups, resulting in a more active, engaged, and independent learning of the various strength exercises.

5.16 Perceived Level of Encountered Problems of Students Based on Accessibility, Environment, and Instructions

This part discusses the respondents' problems using Video-Based Instruction in Teaching Muscle Fitness Exercises. The following stands were taken from their narrative as the participants used the crafted Video-Based Instruction. The results below are based

on a separate survey conducted by the researcher with the two different Physical Education 101 classes, wherein the other class used Video-Based Instruction. In contrast, the other class didn't use any instructional material. The interviews determined that the students had positive experiences using the instructional material.

On the other hand, some of the students experienced challenges as they used the video-based instructional material. Several themes with corresponding codes emerged after analyzing the student's responses. The themes that emerged are the following in terms of Learning Accessibility, Environment, and Instructions. These represent the personal experiences of the student respondents regarding the two different modes of learning instructions.

Table 13

Tabular Presentation on the Perceived Level Encountered Problems of the Experimental Group after the Synchronous Session

Physical Education 101							
	ACCESSIBILITY	**STRONGLY AGREE**	**AGREE**	**DISAGREE**	**STRONGLY DISAGREE**	**TOTAL**	**WEIGHTED MEAN**
1.	I have a strong internet connection	6	26	5	1	38	2.97
2.	My device is in good condition.	10	20	7	1	38	3.02
3.	I can join immediately during a synchronous session.	10	24	4		38	3.15
4.	I can see the video easily	6	24	7	1	38	2.92
	ENVIRONMENT	**STRONGLY AGREE**	**AGREE**	**DISAGREE**	**STRONGLY DISAGREE**	**TOTAL**	**WEIGHTED MEAN**
1.	I have a conducive place for learning and performance	11	**23**	**3**	1	38	3.36
2.	I feel comfortable in performing the exercises in my learning place	15	17	5	1	38	3.21
3.	There are no distractions in the learning space	9	14	13	2	38	2.78
4.	The class has a good, positive learning environment	29	9			38	3.76
	INSTRUCTIONS	**STRONGLY AGREE**	**AGREE**	**DISAGREE**	**STRONGLY DISAGREE**	**TOTAL**	**WEIGHTED MEAN**
1.	The instructions given were clear and well-defined	34	4			38	3.89
2.	Each exercise was demonstrated first before I was asked to perform it.	33	5			38	3.86
3.	I can perform the different exercises efficiently with the use of instructions given	33	5			38	3.86

4.	It was clear to me what I was supposed to learn	32	6		38	3.84

Table 13 shows the positive views and keys for improvement in conducting and using the video-based instructional material. The codes were based on the specified areas like the Accessibility, Environment, and Instructions conducted by the experimental group. After analyzing the principles, several themes emerged.

On the optimistic side, as the students used the given instructional material, they revealed that it helped them learn the key concepts and skills needed to acquire knowledge. They emphasized that, with the instruction provided, they could execute the necessary muscle fitness exercises independently since most students said the instructional material was self-guided.

Given that the synchronous session is quite challenging, some participants stated that the given instructional material was also understandable. It is comprehensible in the sense that the instructions provided and the words used are easy to understand and follow. In addition, the participants appreciated the instructional video material in helping them understand and view the execution of different exercises. It helped them visualize the exercises they needed to perform during the practical examination.

In this survey from this set of students in their feedback questionnaire, the majority said that they agree with having a solid internet connection, having good gadgets, joining immediately in the online session, and seeing the video quickly. No revisions are needed because they encountered no problems using the instructional material. Samanta (2016) revealed in a study that an activity-based teaching method could improve students' learning processes. An activity-based module with comprehensible instructions can help students learn more about the different concepts in swimming. Despite its positive views on accessibility, there must be consideration given in their learning environment. Some students claimed that even though the module is still there, it would not be enough to compensate for the instruction that a teacher can explain.

Though the students had said that the instructional material is well-crafted and instructive, some students still have their share of opinions that say the module still needs some improvements. Given the students' responses, it has been identified that there is a need to improve the instructional material content and that teacher involvement is also needed for the material to be fully effective.

In addition, since we are still experiencing the fear of COVID-19, there is still less interaction between the students and teacher, which leads to a lack of teacher engagement and demonstration. In demonstration and performance, the students need complete control from the teachers in implementing the lesson and making decisions to feel comfortable and secure in the lessons (Tame, 2016). Some students, particularly those not physically active, would be happier if there were more teacher-student interaction.

The students believed the instructional material would be more valuable and practical with the teacher's guidance. In this kind of activity, the presence of the teacher is a must to cater to the concerns and queries and monitor the students' progress. Dayagbil et al. (2021) in their study that in the teaching and learning process, students need comments and feedback on their performance progress and whether they did well on their task.

6. Significant Difference in the Performance of the Control and Experimental Group

This part discusses the significant difference in the performance of the controlled and experimental groups towards the different muscle fitness exercises. The results below are based on the outcomes of the performance of the different exercises conducted by the student respondents.

Table 15 revealed the significant differences in the performances of the Control and Experimental groups. There are statistically significant differences in the control group and experimental group's performances on all competencies.

Table 15
Test of the Significant Difference in the Performances of the Control and Experimental Group

Competencies	Variables Tested	Mean/Mean Rank	T- value	Decision	Interpretation
Agility	Control Group	3.41	5.80	Reject H_0	There is a significant difference
	Experiment al Group	3.84			
Flexibility	Control Group	3.31	6.93	Reject H_0	There is a significant difference
	Experiment al Group	3.57			
Muscular Endurance	Control Group	3.21	5.67	Reject H_0	There is a significant difference
	Experiment al Group	3.65			
Power	Control Group	3.26	5.74	Reject H_0	There is a significant difference
	Experiment al Group	3.70			
Strength	Control Group	3.25	8.6	Reject H_0	There is a significant difference
	Experiment al Group	3.88			

The mean scores of the experimental group on the Agility Exercises (M = 3.48), Flexibility Exercises (M = 3.57), Muscular Endurance (M = 3.65), Power (M = 3.70) and Strength Exercises (M = 3.88). In addition, the mean scores of the controlled group on the Agility Exercises (M = 3.41), Flexibility Exercises (M = 3.31), Muscular Endurance (M = 3.21), Power (M = 3.26) Strength (M = 3.25) are significantly higher than the mean scores of the control group. This means that the experimental group performs better than the control group.

As revealed in the study of Friestad-Tae at al. (2014), instructional material can help students understand and perform better on a particular subject. Thus, the video-based instruction guides the experimental group to perform better than the control group.

7. Conclusion

The study sought to assess the effectiveness of video-based instruction in PATHFIT 1 for teaching muscle fitness to first-year students at the University of Cebu-Main Campus during the academic year 2021-2022. It aimed to provide a basis for potential enhancements to the instructional approach. In addressing its objectives, the research aimed to answer several key questions: Firstly, it investigated how students performed in various muscular fitness exercises, such as agility, flexibility, muscular endurance, power, and strength, using both video-based instructional materials and traditional teaching methods, as outlined in step 4 of the Physical Activity Pyramid. Secondly, it examined whether there was a significant difference in student performance between the two instructional approaches following synchronous sessions. Additionally, the study aimed to identify and understand the challenges encountered by students, particularly in terms of accessibility, environment, and instructions. Finally, based on the study's findings, the research aimed to suggest potential improvements to the instructional video materials to enhance their effectiveness in teaching muscle fitness.

Based on the study findings, the video-based material is an effective tool for teaching Muscle Fitness Exercises to Physical Education 101 students. Moreover, the video material enhances students' performance in executing agility, flexibility, muscular endurance, power, and strength exercises. The acceptability level of the video-based instructional material revealed that students strongly agreed on learning processes. This only means that students perceived the instructional material as a proper and helpful tool to learn how to execute and perform the different muscle fitness exercises. However, some factors could have affected the student's performance and the level of acceptability of the video-based instructional material.

The study's findings were restricted to college students enrolled in PATHFIT 1, a course teaching muscle fitness to first-year students, specifically at the University of Cebu-Main Campus, during the academic year 2021-2022. It is important to note that results may vary for respondents in different circumstances.

Based on the findings, several areas warrant further investigation. Firstly, researchers could analyze factors influencing students' performance when using videos for muscle fitness exercises. Secondly, they could assess students' engagement and satisfaction

with video-based muscle fitness learning. Additionally, exploring methods to enhance the effectiveness of video instruction for muscle fitness is essential. Moreover, examining the long-term impact of video-based muscle fitness instruction on students' knowledge retention is crucial. Furthermore, investigating practical training and support strategies for instructors using video-based muscle fitness instruction is essential. Lastly, understanding students' perspectives on video-based muscle fitness learning can provide valuable insights for improvement. These topics offer promising avenues for future research in this field.

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ORCID ID
0000 0003 0433 5310
0000-0001-6854-3237
0000-0001-8061-8852
0009-0007-0553-8802
0009-0000-6696-7642

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